RADIOCARBON AGE ESTIMATES FOR RUARANGI PA (N20/41), WHANGAREI

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Ruarangi pa, located on a former burial reserve near Whangarei, was a terraced ridge peak fortification in which major earthwork defences such as ditches were lacking, and in which other artificial defensive structures were fairly minimal. Only during an early stage was any evidence found of wooden palisading along terrace perimeters, and then only for the central area of the site. Otherwise defence depended largely on the use of high steep scarps, sometimes supplemented by stone banks (Hougaard 1971, p. 20).

Significant features of the pa included substantial evidence in the form of stone pavements and alignments, house floors, hearths, shell midden and portable artifacts attesting to its use for domestic activities. The artifacts included six adzes of Duff Type 2B. While the evidence for residence within the pa was abundant, none for food storage was present. Rather pits for *kumara* storage lay outside the defensive area some distance away, indicating that this pa did not function as a defended food store.

Hougaard (1971, p. 18) made no attempt to date the site in her excavation report, as C14 age estimates were not then available. She did note that nothing diagnostic of the Archaic culture complex had been discovered and that no early European artifacts of the contact period had found. This suggested that the site belonged somewhere in the long period in between. Some, of course, would see the 2B adzes as a basis for assignment of the pa to the Classic Maori period, but apart from the traditional evidence there was no other indication of its antiquity. Hougaard did stress that she saw no reason to infer that more than one group of people were involved throughout the successive occupation levels, or that there was any major interruption in the occupation sequence despite being able to divide it stratigraphically into four occupations. In local Maori tradition the founding ancestor of the pa, named Torongare, is placed some eleven generations before the present, suggesting that occupation began 250-300 years ago (Oppenheim 1971, p. 24).

Three radiocarbon samples were processed by the New Zealand Radiocarbon Dating Laboratory and results are recorded according to current practice adopted by the Laboratory (Grant-Taylor 1974). Two now provide reasonable age estimates for pa occupation but a third result is rejected.

Sample AU 2092, NZ 1894, was of charcoal collected from a fireplace of occupation I in area C and should have provided the oldest age estimate. A result indicating that the sample consisted of modern (post-bomb) carbon is inconsistent with all evidence for the prehistoric age of all occupation on the site, and can only indicate massive contamination of very recent origin. The result, which cannot be explained, must be discounted as a useful estimate of the site's antiquity.

Rec. Auckland Inst. Mus. 12: 47-48 December 17th, 1975

Sample AU 2115, NZ 1895, was on *Amphidesma australe* shell collected from Area B, occupation III, layer 5, of square L 20-21. X-ray diffraction indicated calcite and aragonite, so that prior to processing, the outer one-third of the shell used was evolved off. The results are:

NZ 1895 A	old $T\frac{1}{2}$	Age: 320 ± 80 before 1950.
NZ 1895 B	new $T\frac{1}{2}$	Age: 330 ± 80 before 1950.

AU 2113, NZ 1896, was on *Chione stuchburyi* shell collected from Area B, occupation IV, layer 2 of square L 20-21. X-ray diffraction indicated calcite only, and despite the evolution off of the outer one-third of the shell prior to processing, the result must be treated with caution, due to the calcite structure. The results are:

NZ 1896 A	old $T\frac{1}{2}$	Age: 170 ± 60 before 1950.
NZ 1896 B	new $T\frac{1}{2}$	Age: 170 ± 60 before 1950.

Corrections for secular effect are not at present applied to shell, so precise calendrical age in years A.D. is not advised (Grant-Taylor 1974).

Discussion

The two results, when uncorrected for secular effect, overlap at less than two standard deviations and therefore need not be taken as significantly different estimates of age. However, as they come from stratigraphically separated horizons, they cannot be pooled to form a single estimate. At one standard deviation, each date range could be taken as a reasonable estimate of age for its respective occupation, one that is acceptable in relation to the stratigraphic, archaeological and cultural context in which it occurs. The results are also reasonably in line with those suggested by genealogical dating.

On this basis a sixteenth to early seventeenth century age is indicated for the initial occupation of the pa. It was then re-occupied by the same people over perhaps a century without any sign of a major interruption or break in use of the locality for residence. Such an age for a terraced ridge peak pa is in no way exceptional, as it joins the increasing evidence of residential pa from this period in the North Island of New Zealand.

Correlating the archaeological evidence with the traditional records Oppenheim (1971, pp. 24-25) suggests that the short occupation of the pa lasted some two generations after Torongare to the time of generation nine and Ruangaio, at which point the pa was deserted. Ruarangi cave was thereafter used as a burial place for the "deceased issue" of Ruangaio, which use would date from the late seventeenth century A.D.

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